

IN THE CLAIMS:

MARKED-UP VERSION OF THE AMENDED CLAIMS

(Version with markings to show changes made)

1. (currently amended) Silicon substrate with positive etching profiles having a defined slope angle, obtained by plasma etching of the silicon substrate in a plasma etching plant with a generated plasma, wherein the silicon substrate is covered by a mask and the following steps are performed
 - a) iso-tropic plasma etching of the silicon substrate, wherein the mask under etching u is approximately equal to the etching depth A_t ,
 - b) enlargement of the etching depth A_t by iso-tropic aniso-tropic etching with alternating, successively following plasma etching steps and polymerization steps, wherein the mask under etching remains constant and wherein the etching front obtains a new course, and wherein the side walls of structure are covered with a polymer with this step,

- c) removal of the polymer from the structure, and
- d) repeating the steps a) through c) until the predetermined etching profile with the pre-given etching depth A_t has been reached.

2. (currently amended) Method for plasma etching while using a plasma etching plant for generating positive etched profiles with defined slope angle in silicon substrates, wherein this silicon substrate is covered with a mask and wherein

- a) the silicon substrate is initially iso-tropically etched with a plasma such that the mask under etching u is approximately equal to the etching depth $[[At]] A_t$,
- b) following thereto the etching depth becomes enlarged by aniso-tropic etching by way of a plasma with alternatingly successively following plasma etching steps and polymerization steps, such that the mask under etching remains constant and the etching front obtains a new course,

wherein the side walls of the structure are covered with a polymer in this step,

c) thereupon the polymer is removed at the side walls of the structure, and
d) the steps a) through c) [[and I]] are repeated as many times until the predetermined etched profile with the defined slope angle β and the pregiven etching depth A_t has been reached.

3. (original) Method according to claim 2 characterized in that the silicon substrate is iso-tropically etched in a SF_6 - plasma.

4. (previously presented) Method according to claim 2 characterized in that the enlargement of the etching depth is performed by an aniso-tropic etching process, wherein the pressures for the process gases are from 1.0 to 5.3 Pa and the interval times amount to 3 to 12 seconds in the aniso-tropic etching process.

5. (presently amended) Method according to [[the]] claim 2 characterized in that the removal of the polymer is performed by way of an O₂ - plasma.

6. (previously presented) Method according to claim 2 characterized in that the slope angle β in the etching profile is determined by adjustment of a time ratio between the steps a) and b).

7. (original) Method according to claim 6 characterized in that the step b) is prolonged and that the time ratio is therefrom determined.

8. (original) Method according to claim 6 characterized in that the step a) is prolonged and that the time ratio is therefrom determined.

9. (new) A method for plasma etching comprising the steps:
covering a silicon substrate with a mask and wherein
initially iso-tropically etching the silicon substrate with a plasma such that
the mask under etching u is approximately equal to the etching depth A_t ,
enlarging the etching depth following thereto by aniso-tropic etching by way
of a plasma with alternately successively following plasma etching steps

and polymerization steps, such that the mask under etching remains constant and the etching front obtains a new course, wherein the side walls of the structure are covered with a polymer in this step, removing thereupon the polymer at the side walls of the structure, and repeating the “initially iso-tropically etching” step, the “enlarging” step, and the “removing” step as many times until the predetermined step etched profile with a defined slope angle β and a pre-given etching depth A_t has been reached in a plasma etching plant for generating positive etched profiles with defined slope angle in silicon substrates.